BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

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| IN THE MATTER OF THE | ) | |
| INVESTIGATION OF THE CONTINUED | ) | |
| REASONABLENESS OF CURRENT SIZE | ) | CASE NO. GNR-E-02-01 |
| LIMITATIONS FOR PURPA QF | ) | |
| PUBLISHED RATE ELIGIBILITY | ) | |
| (i.e., 1 MW) AND RESTRICTIONS | ) | |
| ON CONTRACT LENGTH (i.e., | ) | |
| 5 YEARS). | ) | |

DIRECT TESTIMONY AND EXHIBITS OF

STUART A.T. TRIPPEL

ON BEHALF OF

INDEPENDENT ENERGY PRODUCERS OF IDAHO

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**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Stuart A.T. Trippel. My business address is 506 Second Avenue, Suite 1001, Seattle, Washington 98104-2328.

**Q. WHAT IS YOUR OCCUPATION?**

A. I am a principal in Trippel/Mast Consulting LLC, a management consulting and consulting engineering firm that provides services to public and private clients in the fields of public utilities and process industries.

**Q. ARE YOU SPONSORING ANY EXHIBITS WITH THIS TESTIMONY?**

A. Yes. I am sponsoring Exhibit Nos. 601 through 605.

## A. <u>QUALIFICATIONS</u>

**Q. PLEASE DESCRIBE YOUR QUALIFICATIONS TO TESTIFY AS AN EXPERT IN THIS PROCEEDING.**

A. I have been a management consultant in the field of public utility regulatory economics and related matters for seventeen years. My qualifications, including my educational background and employment history, are further presented as Exhibit No. 601.

**Q. ARE YOU FAMILIAR WITH THE IDAHO PUBLIC UTILITIES COMMISSION AND ELECTRICITY ISSUES IN THE STATE OF IDAHO?**

A. Yes. I have provided consulting services to interested parties on numerous matters that have come before the Idaho Public Utilities Commission (the "Commission") over the past eight years. I have also prepared analyses and presented informational workshops to parties with interest in the Idaho electric utility industry during that time.

**Q. HAVE YOU PREVIOUSLY APPEARED AS AN EXPERT WITNESS BEFORE THIS COMMISSION?**

A. Yes. I was admitted as an expert before this Commission and was cross-examined in the recent PCA energy cost bond case (Docket Nos. IPC-E-02-2 and –3). I have also assisted in the preparation of testimony and exhibits (sponsored by another witness) in other contested proceedings, as well as comments in several notice-and-comment ("modified procedure") processes, since 1994.

## B. INTRODUCTION AND OVERVIEW OF TESTIMONY

**Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

A. I am testifying on behalf of the Independent Energy Producers of Idaho (IEPI), a group of thirteen producers or potential producers of qualifying facility (QF) power subject to the jurisdiction of this Commission.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. The purpose of my testimony is to recommend two changes in the calculation of avoided costs for QFs in Idaho. First, I recommend updating the natural gas price used in the avoided cost model. Second, I recommend changes to the treatment of the first deficit year.

**Q. ARE THESE THE ONLY TWO CHANGES THAT YOU CONSIDER TO BE NECESSARY IN THE CALCULATION OF QF AVOIDED COSTS IN IDAHO?**

A. My testimony does not mean to imply that other changes to the calculation of avoided cost could not be made. Due to the accelerated nature of this proceeding, however, these are the two issues that IEPI is presenting at this time. Further issues may be addressed on rebuttal testimony in response to positions of the other intervenors in this proceeding.

## C. NATURAL GAS PRICES

**Q. HOW ARE NATURAL GAS PRICES CURRENTLY INCORPORATED INTO THE AVOIDED COST MODEL?**

A. When a new QF contract is signed, natural gas prices are determined initially according to the average natural gas price over the previous calendar year at Sumas, Washington. An escalation rate of six percent per year is applied to this initial price to arrive at prices in future years of the contract, or a levelized price for the life of the contract.

**Q. IS THERE A PROBLEM WITH THIS METHOD?**

A. There are two problems with this method. First and foremost, gas prices at Sumas, along with gas prices elsewhere, have been fluctuating considerably over the past few years. The initial-year natural gas price is "locked in" and escalated at six percent over the term of the contract. When gas prices fluctuate widely, as they have in recent years, the result is a corresponding fluctuation in avoided cost rates. This in turn makes it difficult for QF developers to plan their resources. As a result of this pricing mechanism, Idaho may not be getting all of the QF resources that it would if a more predictable method of dealing with gas prices were adopted.

**Q. WHAT IS THE OTHER PROBLEM WITH THE EXISTING METHOD?**

A. The other problem is related to the first; namely, the six percent escalation rate itself. In some years, a six percent escalation rate may be entirely appropriate; for example, if the initial gas price is low. The annual escalation rate is not independent of the initial gas price, however. The escalation rate and initial gas price need to be linked -- an appropriate first-year gas price with a corresponding annual escalation rate, which together result in a reasonable and predictable forecast of gas prices.

**Q. ARE NATURAL GAS PRICE FORECASTS AVAILABLE FROM VARIOUS SOURCES?**

A. Yes. Natural gas price forecasts are available from a variety of sources, from regional to international levels. Some of these are publicly available, free of charge, such as those published by the United States Department of Energy and the Northwest Power Planning Council. Others are privately produced, such as the one published by DRI-WEFA (formerly known as the WEFA Group, which had its genesis in a consultancy created by a professor at the Wharton School of the University of Pennsylvania). DRI-WEFA is a for-profit consulting and forecasting firm, whose natural gas price forecast Idaho Power Company uses as one input to its Integrated Resource Plan.

**Q. WHICH FORECAST DO YOU RECOMMEND THAT THIS COMMISSION ADOPT FOR IDAHO AVOIDED COST RATES?**

A. I recommend that the Commission adopt a forecast prepared by the Northwest Power Planning Council (NPPC). Specifically, I recommend adoption of the medium-high forecast series from the Draft Fuel Price Forecasts for the 5th Northwest Conservation and Electric Power Plan, April

25, 2002 (Council Document 2002-07) (hereinafter the "NPPC Forecast"). I recommend that the Commission use the regional electricity generation, east-side delivered forecast with initial-year price averaging and an average annual growth rate through the year 2025.

**Q. WHY DO YOU RECOMMEND USING THE NPPC FORECAST?**

A. The NPPC Forecast has several features to recommend it. First, it is regional in scope and considers specific regional basis differentials in gas pricing, as well as regional transportation issues. Second, it is prepared through a collaborative process of interested parties, including electric and gas utilities, their customers, and experts in the field. Third, the process used to prepare it is public, with drafts, agendas, and meeting minutes all available. Fourth, the document itself is publicly available on the NPPC's web site, and it is supplied free of charge. Finally, because such a diverse group of interested parties in the region has participated in preparing it, it is less likely to be criticized, since it would likely have to be criticized either by its own preparers or by their associates. This should lead to a less contentious process overall.

**Q. WHY DO YOU RECOMMEND USE OF THE REGIONAL ELECTRICITY GENERATION EAST-SIDE DELIVERED SERIES OF PRICES?**

A. This series represents the situation that would most closely apply to a surrogate avoided resource (SAR) on the east side of the Pacific Northwest region, where Idaho lies. The delivered price includes basis differential from the wellhead and trading hubs, as well as transportation cost.

**Q. WHY DO YOU RECOMMEND USING THE MEDIUM-HIGH FORECAST, RATHER THAN THE MEDIUM, MEDIUM-LOW, LOW, OR HIGH?**

A. The natural gas market has experienced significant price fluctuations in recent years. In view of such price volatility and the risk associated with it, it is more appropriate to select a forecast on the high side than on the low side or in the middle. This is because, while the lower bound of possible price is zero, the upper bound of possible prices is unlimited. Indeed, both natural gas and electric markets have recently witnessed prices that would have shocked most people until they became reality.

**Q. FOLLOWING THIS LINE OF REASONING, WHY NOT RECOMMEND THAT THE COMMISSION ADOPT THE NPPC'S HIGH FORECAST, RATHER THAN MEDIUM-HIGH?**

A. Actually, I believe it would be entirely reasonable for the Commission to adopt the NPPC's high forecast series. My proposal to adopt the medium-high forecast series represents a desire to adopt a conservative approach from the outset.

**Q. WHY WOULD THE HIGH FORECAST BE REASONABLE?**

A. The NPPC Forecast itself describes two relevant phenomena. First is the fluctuations in natural gas prices over the past fifteen years:

> After the deregulation of wellhead natural gas prices around 1986, natural gas prices fell dramatically to the $2.00 per million Btu range. Since then, until 2000, natural gas prices varied between $1.60 and $2.40 in year 2000 prices. In 2000, natural gas prices shot up, reaching a peak of nearly $8.00 in January 2001. Although the 2000 price spike created expectations of significantly higher natural gas prices in the future, prices fell rapidly during 2001 and by February 2002 had returned to near their post-deregulation average of $2.15 in year 2000 prices. <u>Many industry participants believe that the lower prices this past winter were due to extremely warm temperatures and high natural gas storage inventories and that there remains an underlying shortage of natural gas supplies.</u>

(NPPC Forecast at 14-15; footnote omitted; emphasis added; prices cited are in real, year-2000 dollars.) A table from the NPPC Forecast, showing the fluctuations described above, is included as Exhibit No. 602.

Second, virtually all electric generation that is coming online in the Pacific Northwest is, and will be for the next several years, fueled by natural gas. The NPPC Forecast states that "[n]early all new proposed electricity generation capacity is natural gas fired. Although natural gas consumption only recently returned to the levels of the early 1970s, substantial growth is now being projected due to growing plans for electricity generation" (NPPC Forecast at 9). This increased reliance on natural gas can be expected to increase price volatility in the event of extreme weather or market disruption. Regarding the recent events of this nature, the NPPC Forecast summarizes as follows:

> [T]he dramatic increase in the use of natural gas in existing generation plants in 2000 and 2001 clearly had an exaggerated effect on natural gas markets and prices. Due to the sudden and severe shortage in electricity supplies and the unprecedented electricity prices, the natural gas delivery system in the West was pushed far beyond normal operational patterns. Thus, the impacts on natural gas prices were more severe than should be expected from an orderly development of additional natural gas demands for electricity generation.

(NPPC Forecast at 9.) Although the NPPC Forecast refers to "orderly development of additional natural gas demands," it is clear that the current energy environment, in both electricity and natural gas, is far from orderly. In fact, in the instant proceeding this Commission recently observed the following with regard to this issue:

> Utilities contend that what has developed is a very robust and competitive regional wholesale market. Open access transmission linking the supply markets throughout the WSCC region, PacifiCorp contends, has been implemented. Thermal technologies, the utilities argue, continue to improve. Natural gas prices, they note, have returned to historical levels. The price spikes that occurred in 2000 and 2001 we are asked to ignore, as if it was merely an

anomaly. What has not changed, we find, is the utilities' opposition to PURPA and the QF industry.

(Order No. 29029 at 5.)

**Q. HAVE YOU PREPARED A TABLE CONTAINING YOUR RECOMMENDED FORECAST?**

A. Yes. My recommended natural gas price forecast, developed from the medium-high series in the NPPC Forecast, is included as Exhibit No. 603. Exhibit No. 604 includes, for comparison or for consideration by the Commission, a forecast developed from the high series in the NPPC Forecast.

**Q. PLEASE EXPLAIN THE TABLES IN EXHIBIT NOS. 603 AND 604.**

A. In each table, Column 1 contains the real price, in year-2000 dollars per million British thermal units (MMBtu), of east-side delivered natural gas from the NPPC Forecast. The annual escalation in real terms is provided for informational purposes in Column 2. The real price in Column 1 is converted to a nominal price in Column 3, using a general inflation rate of 2.7 percent per year, which I understand comports with the Commission Staff's current practice. Annual nominal escalation, and the average annual growth rates from 2002, are presented in Columns 4 and 5, respectively. All of these columns assume no initial-year price averaging.

**Q. WHAT DO YOU MEAN BY "INITIAL-YEAR PRICE AVERAGING"?**

A. As can been seen from the nominal prices in Column 3 for the years 2000 through 2002, there is significant fluctuation in these early years. In order to mitigate this, I took the simple average (arithmetic mean) of these three nominal figures to arrive at an initial-year (2002) medium-high forecast price of $3.84 per MMBtu and presented this in Column 6. Prices in Column 6 for the year 2003 and beyond are the same as they are in Column 3. Columns 7 and 8 recalculate the annual nominal escalation and average annual growth rate from 2002, this time on the basis of the initial-year averaged price of $3.84 per MMBtu.

**Q. PLEASE DESCRIBE YOUR RECOMMENDED ESCALATION RATE.**

A. I recommend an annual escalation rate of 3.1 percent per year in the medium-high forecast, as shown at the bottom of Column 8 in Exhibit No. 603. The average annual growth rate converges to 3.1 percent in the latter years of the forecast.

**Q. DO YOU PROPOSE UPDATING THIS INFORMATION IN FUTURE YEARS?**

A. It would seem reasonable that the Commission update natural gas prices when a new NPPC forecast becomes available. Until now, the NPPC has prepared its fuel price forecasts as inputs to its Power Plan. As such, the forecasts were only updated when the Power Plan was updated. It is my understanding that the NPPC now intends to engage in more ongoing market monitoring and assessment activities and, in support of this, intends to update its fuel price forecasts more frequently. I would suggest that Commission Staff be given the task of keeping the Commission informed of future updates and making recommendations regarding updates within the methodological parameters proposed here.

**Q. PLEASE SUMMARIZE YOUR RECOMMENDATION WITH REGARD TO NATURAL GAS PRICE.**

A. I recommend that the Commission adopt a year-2002 natural gas price of $3.84 per MMBtu and a nominal escalation rate of 3.1 percent per year.

## D. <u>FIRST DEFICIT YEAR</u>

**Q. WHAT IS THE SIGNIFICANCE OF THE FIRST DEFICIT YEAR?**

A. The first deficit year, which until now has been determined individually for each of the three utilities subject to the Commission’s jurisdiction in this proceeding, determines the point at which the avoided cost rates convert from a surplus energy cost to a rate that reflects the energy and capacity costs of the SAR. Other things being equal, the earlier the first deficit year, the higher the levelized avoided cost rates.

**Q. HOW IS THE FIRST DEFICIT YEAR DETERMINED?**

A. The first deficit year was determined initially by the Commission on the basis of each utility's load-resource balance and forecast. To my knowledge these first deficit years have been updated infrequently or not at all since the original determination. The burden of updating appears to be on the utilities, without any specific Commission mandate.

**Q. DO UTILITIES HAVE AN INCENTIVE WITH REGARD TO THE FIRST DEFICIT YEAR DETERMINATION?**

A. To the extent that the utilities do not wish to encourage development of non-utility power, they have an incentive to determine first deficit years that are far in the future. In the current proceeding, the Commission has already observed the utilities' opposition to QF power:

> Despite a QF history of industry reliability and an opportunity presented to utilities to diversify their resource base by adding renewables, utilities continue to regard PURPA QFs as interlopers. Although we are reminded by PacifiCorp that there is legislation presently before Congress that would repeal the mandatory purchase obligation under Section 210 of PURPA, we remind PacifiCorp that utilities have been actively lobbying for its repeal since it was enacted and that as of today it continues to be the law.

(Order No. 29029 at 5.) The utilities' opposition to QFs has frustrated non-utility power development by keeping avoided cost rates artificially low.

**Q. WHAT IS WRONG WITH THE BURDEN BEING ON THE UTILITIES TO DETERMINE FIRST DEFICIT YEAR?**

A. First, there is an asymmetry of information. The utilities have the data and information necessary to make this determination; in particular, their load forecasts and specific, detailed knowledge of both load and resource trends on their systems. Second, this is coupled with the utilities' incentive, or desire, to delay the first deficit year. Together these factors make it difficult for independent power producers to build projects at costs comparable to the SAR.

**Q. IF THESE FACTORS WERE NOT PRESENT, WOULD IT THEN BE EASY TO DETERMINE THE FIRST DEFICIT YEAR?**

A. Probably not. Even in the absence of these factors, determination of the first deficit year invites contention over various technical issues. For example, what is meant by deficit, capacity or energy? Under what water conditions? Over what time period -- hour, day, week, month, season, or year? Which resources are counted; for example, all contracts, contracts over one year, or some other period? Is the load forecast accurate, and how was it prepared?

I am not suggesting that these are insurmountable issues, only that for small projects, the cost of addressing them is likely to outweigh the benefits. This, by analogy, is one of the reasons for having published avoided cost rates for projects under a certain size. In addition, having published avoided cost rates militates against arbitrariness, promotes uniformity, and saves the expense of rate proceedings that would further make QF resource development economically unattractive. These benefits of published rates apply equally well to a Commission-determined threshold size on the first deficit year issue. It also makes sense that the threshold of 10 megawatts be used for both purposes.

**Q. WHAT DO YOU PROPOSE AS A SOLUTION TO THIS ISSUE?**

A. We propose that the Commission deem that, for any resource less than 10 megawatts, the purchasing utility is in deficit; that is, the first deficit year has already occurred.

## E. RATE IMPACTS

**Q. HAVE YOU CALCULATED THE IMPACT OF YOUR RECOMMENDATIONS ON AVOIDED COST RATES?**

A. Yes. Exhibit No. 605 includes an abbreviated form of the spreadsheet model used to calculate avoided cost non-fueled rates for the three utilities. In each case, the only changes made were to the initial natural gas price, the escalation rate, and the first deficit year. Other variables remain the same as they are currently in the model.

**Q. PLEASE DESCRIBE YOUR MODIFICATIONS TO THIS MODEL.**

A. In addition to changing the three assumptions noted above, I modified the model slightly in two respects. First, I added a heat rate figure to facilitate conversion of natural gas prices in dollars per MMBtu to mills per kilowatt-hour (kWh). I used the heat rate for the SAR defined in Order No. 25882 from the 1995 avoided cost case; namely, the General Electric Frame 7FA 230-megawatt natural gas combined-cycle combustion turbine, as identified by the NPPC in the 1995 Northwest Conservation and Electric Power Plan. This heat rate, as reported in the plan, is 7,350 Btu/kWh.

Second, I modified the model to report the 20-year levelized contract rates on the first page of the printout. The column headed "20-year K Levelized" reports these rates for contract years beginning in 2002 (at the top) to 2007 (at the bottom). This was done simply for the purpose of fitting the relevant data and sample results on one page, without disrupting the workings of the spreadsheet model.

**Q. PLEASE SUMMARIZE THE RATES RESULTING FROM YOUR RECOMMENDATIONS.**

A. For all three utilities, the resulting rates range from 51 mills/kWh (for a 2002 online date) to 60 mills/kWh (for a 2007 online date). For comparison purposes, the current rates would be 71-93 mills/kWh for Idaho Power, representing a decrease of 28-35 percent.

**Q. ARE YOU SUGGESTING THAT THESE ARE THE ONLY CHANGES TO BE MADE TO THE AVOIDED COST RATE CALCULATION, AND THAT THESE RESULTING RATES SHOULD BE USED?**

A. No. As I said at the outset, due to the limited time for this proceeding, the IEPI is only offering testimony on the issues of natural gas price and first deficit year in direct testimony. Other intervenors, including Commission Staff, will undoubtedly address other issues that should be considered in setting avoided cost rates. We anticipate that we will in turn make further recommendations, and recalculate rate impacts, as part of rebuttal testimony.

## F. SUMMARY AND CONCLUSIONS

**Q. PLEASE SUMMARIZE YOUR TESTIMONY AND CONCLUSIONS.**

A. In view of the testimony presented above, I recommend that in setting avoided cost rates the Commission adopt a natural gas price of $3.84 for 2002, with a nominal escalation rate of 3.1 percent per year. I further recommend that the Commission deem that, with respect to any QF of less than 10 megawatts, the purchasing utility will be considered to be in resource deficit, and pay the full avoided cost under that assumption.

**Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

A. Yes.

**EXHIBIT NO. 601**

**PROFESSIONAL EXPERIENCE AND BACKGROUND OF**

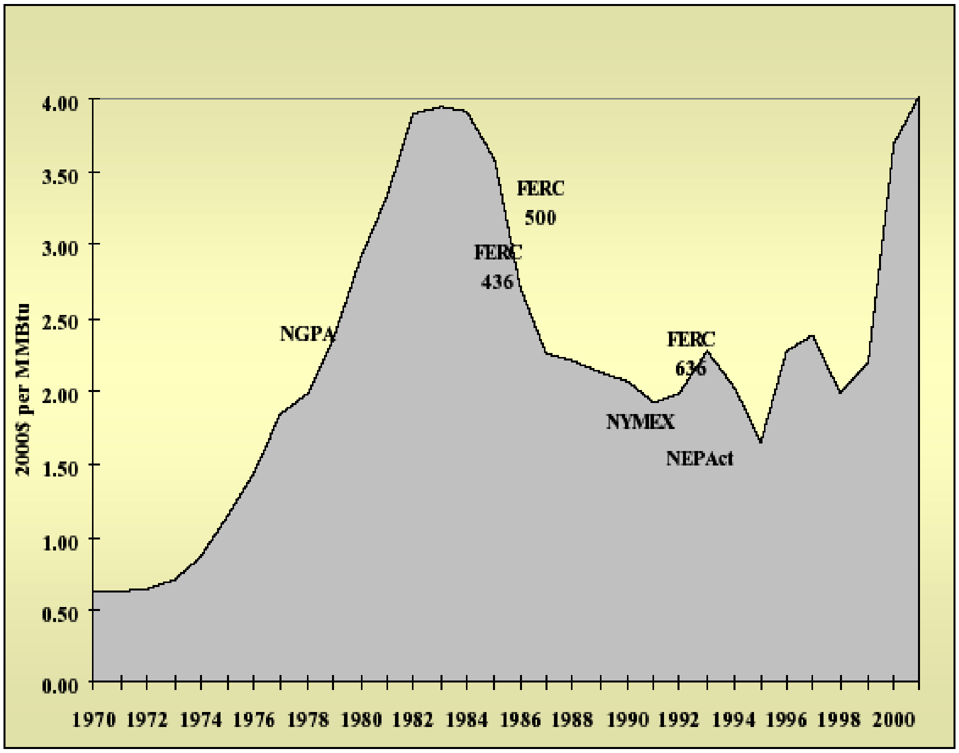
**STUART A.T. TRIPPEL**

**WITNESS FOR INDEPENDENT ENERGY PRODUCERS OF IDAHO**

# EXHIBIT NO. 602

# HISTORY OF NATURAL GAS PRICES

**Figure 6**
**History US Wellhead Natural Gas Prices**




Source: <u>Draft Fuel Price Forecasts for the 5th Northwest Conservation and Electric Power Plan</u>, April 25, 2002 (Council Document 2002-07), at 15.

# EXHIBIT NO. 603

# RECOMMENDED NATURAL GAS PRICE FORECAST

# (NPPC MEDIUM-HIGH)

**EXHIBIT NO. 604**

**ALTERNATE NATURAL GAS PRICE FORECAST**

**(NPPC HIGH)**

**EXHIBIT NO. 605**

**AVOIDED COST RATES UNDER RECOMMENDATIONS**